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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,091	12/23/2003	Keiji Nishimura	246949US3	8114
22850	7590	05/19/2005	EXAMINER	
OBLOON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			VERDIER, CHRISTOPHER M	
			ART UNIT	PAPER NUMBER
			3745	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary

Application No.

10/743,091

Applicant(s)

NISHIMURA ET AL

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-9 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12-23-03, 9-16-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 1, line 5, "Applications" should be changed to -- Application --.

On page 2, line 6, -- be -- should be inserted after "airfoil".

On page 5, line 2, -- the -- should be inserted after "to".

On page 5, line 3, -- the -- should be inserted after "to".

On page 6, line 15, "engage" should be changed to -- locator --.

On page 7, line 9, -- and -- should be inserted after ",".

Examiner's Suggestions to Claim Language

The following are suggestions to improve the clarity and precision of the claims:

In claim 1, line 3, "a blade" may be deleted.

In claim 1, line 3, "which" may be changed to -- said blade --.

In claim 1, line 4, "which" may be changed to -- said blade --.

Claim Objections

Claims 1-9 are objected to because of the following informalities: Appropriate correction is required.

In claim 1, line 11, "a" should be changed to -- an --.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 5-8 recite "a recess in a range of less than or equal to 0.7 mm." This is incomplete because it is unclear what measurement "in a range of" refers to, i.e. depth, diameter, etc.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hendley 4,872,812. Note the turbine blade 16 to be installed into an engaged member 12 of a turbine disk 11 of an aircraft engine (note that any gas turbine engine is functional as an aircraft engine) comprising a blade 16, one side of which having a convex suction surface and the other side of

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which having a concave pressure surface near 17, a platform 42, 43 on a hub side of the blade, a recess 51 being formed on one side of the platform, a front seal fin 35 formed protruding forward at the front end of the platform, and a rear seal fin (just below 46) formed protruding backward at the back end of the platform, an engagement member 13 on the hub side of the platform, the engagement member having an engagement face which is able to be engaged with the engaged member 12, a front engagement member near 47 in the vicinity of a base portion of the front seal fin 35, the front engagement member having an unnumbered front engagement face (the vertical wall inside of 47) able to engage with a front locating portion of a jig to be used for grinding, and the front engagement face located back from a virtual plane including the one side of the platform; a front wall 44 in the vicinity of the base portion of the front seal fin, the front wall surrounding a front side-edge portion of the front engagement member, a rear engagement member near 48 in the vicinity of a base portion of the rear seal fin, the rear engagement member having an unnumbered rear engagement face (the vertical wall inside of 48) able to engage with a rear locating portion of the jig, and the rear engagement face located back from the virtual plane, and a rear wall 46 in the vicinity of the base portion of the rear seal fin, the rear wall surrounding a rear side-edge portion of the rear engagement member, wherein an end face of the front wall and an end face of the rear wall are respectively configured to be coplanar with the virtual plane. The front engagement face and the rear engagement face are respectively configured to be substantially parallel to the longitudinal direction of the engagement member 13. The engaged member is a female dovetail 12 and the engagement member is a male dovetail 13. The recitation in claim 1, line 5 of the platform integrally molded on a hub side of the blade, in claim 1, lines 10-11 of the engagement member integrally molded on the hub side of the

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platform, in claim 1, lines 12-13 of the engagement face being formed by grinding, in claim 1, lines 13-14 of the front engagement member integrally molded in the vicinity of the base portion of the front seal fin, in claim 1, lines 19-20 of the front wall integrally molded in the vicinity of the base portion of the front seal fin, in claim 1, lines 22-23 of the rear engagement member integrally molded in the vicinity of a base portion of the rear seal fin, and in claim 1, lines 27-28 of the rear wall integrally molded in the vicinity of the base portion of the rear seal fin, are product-by-process limitations and do not distinguish over Hendley. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product-by-process claim does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

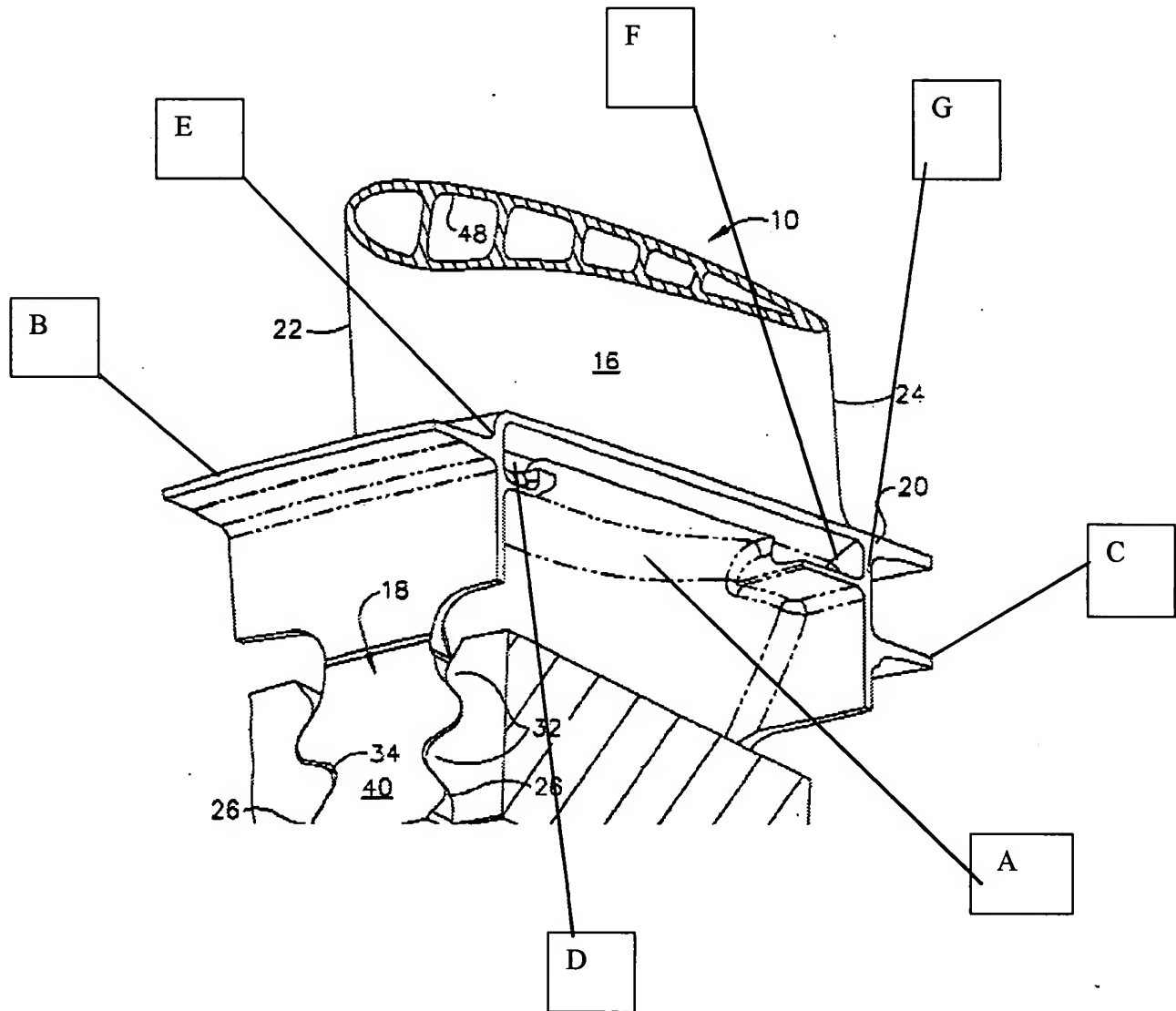
The recitation in claim 1, lines 15-16 of the front engagement member front engagement face able to engage with a front locating portion of a jig to be used for the grinding, and the recitation in claim 1, lines 24-25 of the rear engagement member rear engagement face able to engage with a rear locating portion of the jig are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Claims 1-2 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Herman 6,786,696 (see the annotated figure at the end of this paragraph). Note the turbine blade 10 to be installed into an engaged member 28 of a turbine disk 30 of an aircraft engine comprising a blade 10, one side of which having a convex suction surface and the other side of which having a concave pressure surface, a platform 20 on a hub side of the blade, a recess A being formed on one side of the platform, a front seal fin B formed protruding forward at the front end of the platform, and a rear seal fin C formed protruding backward at the back end of the platform, an engagement member 18 on the hub side of the platform, the engagement member having an engagement face 26 which is able to be engaged with the engaged member 28, a front engagement member D in the vicinity of a base portion of the front seal fin, the front engagement member having a front engagement face able to engage with a front locating portion of a jig to be used for grinding, and the front engagement face located back from a virtual plane including the one side of the platform; a front wall E in the vicinity of the base portion of the front seal fin, the front wall surrounding a front side-edge portion of the front engagement member, a rear engagement member F in the vicinity of a base portion of the rear seal fin, the rear engagement member having a rear engagement face able to engage with a rear locating portion of the jig, and the rear engagement face located back from the virtual plane, and a rear wall G in the vicinity of the base portion of the rear seal fin, the rear wall surrounding a rear side-edge portion of the rear engagement member, wherein an end face of the front wall and an end face of the rear wall are respectively configured to be coplanar with the virtual plane. The front engagement face and the rear engagement face are respectively configured to be substantially parallel to the longitudinal

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direction of the engagement member 18. The engaged member is a female dovetail 28 and the engagement member is a male dovetail 26. The recitation in claim 1, line 5 of the platform integrally molded on a hub side of the blade, in claim 1, lines 10-11 of the engagement member integrally molded on the hub side of the platform, in claim 1, lines 12-13 of the engagement face being formed by grinding, in claim 1, lines 13-14 of the front engagement member integrally molded in the vicinity of the base portion of the front seal fin, in claim 1, lines 19-20 of the front wall integrally molded in the vicinity of the base portion of the front seal fin, in claim 1, lines 22-23 of the rear engagement member integrally molded in the vicinity of a base portion of the rear seal fin, and in claim 1, lines 27-28 of the rear wall integrally molded in the vicinity of the base portion of the rear seal fin, are product-by-process limitations and do not distinguish over Herman. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product-by-process claim does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The recitation in claim 1, lines 15-16 of the front engagement member front engagement face able to engage with a front locating portion of a jig to be used for the grinding, and the recitation in claim 1, lines 24-25 of the rear engagement member rear engagement face able to engage with a rear locating portion of the jig are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of

performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).



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Claims 1-2 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Grover 6,354,803. Note the turbine blade 12 to be installed into an engaged member 30 of a turbine disk 14 of an aircraft engine comprising a blade 12, one side of which having a convex suction surface and the other side of which having a concave pressure surface (since the blade is an airfoil shape, it inherently has a concave pressure surface and a convex suction surface), a platform 22 on a hub side of the blade, an unnumbered recess being formed on one side of the platform, a front seal fin 44 formed protruding forward at the front end of the platform, and a rear seal fin 44 formed protruding backward at the back end of the platform, an engagement member 24 on the hub side of the platform, the engagement member having an engagement face which is able to be engaged with the engaged member 30, a front engagement member near 54 in the vicinity of a base portion of the front seal fin 44, the front engagement member having a front engagement face 72 able to engage with a front locating portion of a jig to be used for grinding, and the front engagement face located back from a virtual plane including the one side of the platform; an unnumbered front wall in the vicinity of the base portion of the front seal fin, the front wall surrounding a front side-edge portion of the front engagement member, a rear engagement member near 56 in the vicinity of a base portion of the rear seal fin, the rear engagement member having a rear engagement face 72 able to engage with a rear locating portion of the jig, and the rear engagement face located back from the virtual plane, and an unnumbered rear wall in the vicinity of the base portion of the rear seal fin, the rear wall surrounding a rear side-edge portion of the rear engagement member, wherein an end face of the front wall and an end face of the rear wall are respectively configured to be coplanar with the virtual plane. The front engagement face and the rear engagement face are respectively

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configured to be substantially parallel to the longitudinal direction of the engagement member

24. The engaged member is a female dovetail 30 and the engagement member is a male dovetail

24. The recitation in claim 1, line 5 of the platform integrally molded on a hub side of the blade,

in claim 1, lines 10-11 of the engagement member integrally molded on the hub side of the

platform, in claim 1, lines 12-13 of the engagement face being formed by grinding, in claim 1,

lines 13-14 of the front engagement member integrally molded in the vicinity of the base portion

of the front seal fin, in claim 1, lines 19-20 of the front wall integrally molded in the vicinity of

the base portion of the front seal fin, in claim 1, lines 22-23 of the rear engagement member

integrally molded in the vicinity of a base portion of the rear seal fin, and in claim 1, lines 27-28

of the rear wall integrally molded in the vicinity of the base portion of the rear seal fin, are

product-by-process limitations and do not distinguish over Grover. Even though product-by-

process claims are limited by and defined by the process, determination of patentability is based

on the product itself. The patentability of a product-by-process claim does not depend on its

method of production. If the product in the product-by-process claim is the same as or obvious

from a product of the prior art, the claim is unpatentable even though the prior product was made

by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

The recitation in claim 1, lines 15-16 of the front engagement member front engagement face

able to engage with a front locating portion of a jig to be used for the grinding, and the recitation

in claim 1, lines 24-25 of the rear engagement member rear engagement face able to engage with

a rear locating portion of the jig are recitations of intended use. A recitation of the intended use

of the claimed invention must result in a structural difference between the claimed invention and

the prior art in order to patentably distinguish the claimed invention from the prior art. If the

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prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-6, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over either Herman 6,786,696 or Grover 6,354,803. Herman and

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Grover disclose turbine blades substantially as claimed as set forth above, but do not disclose that each of the front engagement face and the rear engagement face has a recess depth of less than or equal to 0.7 mm.

The recitation of the recess depth being less than or equal to 0.7 mm is deemed to be a matter of choice in design. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to select the depth of the recesses in the turbine blades of either Herman or Grover to be a specific value, such as less than or equal to 0.7 mm, for the purpose of accommodating for various space requirements in the blades of the turbine.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tomberg is cited to show a turbine blade with front and rear engagement faces.

Airey is cited as the U.S. equivalent to Japanese Patent 10-196,309, cited by Applicants.

Dwyer, Jones '995, Cavalieri, and Jones '033 are cited to show various turbine blade grinding clamps.

Allowable Subject Matter

Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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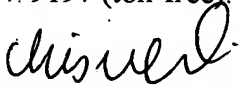
Claims 7 and 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
May 9, 2005


Christopher Verdier
Primary Examiner
Art Unit 3745